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ABSTRACT

This report presents a study designed to determine if 5-year-olds possess an understanding of causation that conforms to the Weiner et al (1971) achievement model. This paper also studies the similarities between the attributional explanations of 5-year-olds and their teachers. Twenty-eight kindergarten students, largely part-Hawaiian, were asked to explain the outcome of a story in terms of achievement determinants. Each of four teachers of the class was given a questionnaire for each child and asked to explain a given performance in terms of a rating scale of achievement dimensions. Results show outcome (positive and negative), sex, and income to be significantly related to the children's attributional choices. Income and IQ were found to be significantly related to teacher responses. Children's choices of task and ability did not predict teacher responses; choices of luck and effort were significantly related to teacher ratings. The data indicate awareness of the causal nature of achievement in kindergarten-aged children and considerable agreement between teacher and student responses.  
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## The Kamehameha Early Education Program

The Kamehameha Early Education Program (KEEP) is a research and development program of The Kamehameha Schools/Bernice P. Bishop Estate.

The mission of KEEP is the development, demonstration, and dissemination of methods for improving the education of Hawaiian and Part-Hawaiian children. These activities are conducted at the Ka Na'i Pono Research and Demonstration School, and in public classrooms in cooperation with the State Department of Education. KEEP projects and activities involve many aspects of the educational process, including teacher training, curriculum development, and child motivation, language, and cognition. More detailed descriptions of KEEP's history and operations are presented in Technical Reports #1-4.

### Abstract

This report presents a study designed to determine if 5-year olds possess the understanding of causation that conforms to the Weiner et al (1971) achievement model. Furthermore, this paper studies the similarities between the attributional explanations of 5-year olds and their teachers. Twenty-eight 5-year old students, largely part-Hawaiian, from a single kindergarten were asked to explain the outcome of a story in terms of achievement determinants. Their four teachers were each given a questionnaire for each child and asked to explain a given performance in terms of a rating scale of achievement dimensions. Results show outcome (positive or negative), sex, and income to be significantly related to the children's attributional choices. Income and IQ were found to be significantly related to teacher responses. Children's choices of task and ability did not predict teacher responses; choices of luck and effort were significantly related to teacher ratings. The data indicate awareness of the causal nature of achievement in kindergarten-aged children and considerable agreement between teacher and student responses.

Technical Report #38

The attributional explanation of academic  
performance by kindergarteners and their teachers<sup>1,2</sup>

Toni Falbo

The development of achievement motivation has received considerable attention. Recently, Weiner (1972) and his associates devised a cognitive-developmental model of achievement motivation within the framework of attribution theory. As such, this model concerns a person's explanation of outcomes, or his understanding of the causes of outcomes. Weiner and Kukla (1970) proposed that certain tendencies in these explanations, which they call attributional tendencies, are related to high and low achievement in adults. This paper is an attempt to discover if such attributional tendencies occur in young children. More specifically, the experiments described here are designed to determine if 5-year olds possess the understanding of causation that conforms to the Weiner et al (1971) achievement model. Furthermore, this paper studies the similarities between the attributional explanations of 5-year olds and their teachers.

<sup>1</sup>Falbo, T. The attributional explanation of academic performance by kindergarteners and their teachers. Proceedings of the 81st annual convention of the American Psychological Association, 1973, 8(1). 123-124. Copyright 1975 by the American Psychological Association. Reprinted by permission.

<sup>2</sup>This research was partially supported by The Kamehameha Early Education Project, The Kamehameha Schools, Honolulu; the work was completed while the author was a NICHD PreDoctoral Fellow, Mental Retardation Research Center, UCLA.

### Method

#### Subjects

The sample includes 28, 5 year old children who were enrolled in the same kindergarten class in Honolulu, Hawaii. These children are predominantly of Part-Hawaiian ancestry and speak Hawaiian-Creole, a nonstandard form of English. The sample also includes 4 female teachers, ages 24-48, who were involved in teaching the 28 children of the sample.

#### Procedure

A story concerning a 5 year old child was written in Hawaiian-Creole. It was tape recorded while being read by a native speaker. There were four versions of the story: two outcomes (positive/negative) and two sexes for the main character. The outcome concerned the successful or unsuccessful completion of a puzzle.

Each child listened to the taped story once. Half the children heard the positive outcome, half the negative. Ss were randomly assigned to outcome groups. The experiment took place within the classroom as a learning center activity.

Each child was asked to explain why the main character completed (or left incomplete) the puzzle by making choices between pairs of alternatives. Each child was given six paired comparison choices representing the six possible combinations of Weiner et al. (1971)'s four dimensions: task difficulty, luck, ability, and effort. The order of presentation of these six alternative was systematically varied.

Each teacher was given 28 questionnaires. Each questionnaire was devoted to an individual child and his puzzle performance. The child's puzzle performance was presented as a number derived from the observation of children's actual puzzle behavior within the classroom. This number, called the puzzle

score, reflected the number of puzzles completed by each child minus the number left unfinished. The teachers were given 17 rating scales based upon the Weiner et al (1971) dimensions of achievement behavior. In terms of these dimensions, the teachers were supposed to explain the child's puzzle performance.

#### Other measures

The WPPSI, an IQ test, was administered to each child in his home during the summer before school began. A SES measure was also available. Half the children belonged to families receiving welfare benefits; half were middle class.

### Results and Discussion

#### Children's Attributions

The attributional choices were scored as the number of times each attributional dimension was chosen when presented in paired comparison form. Even though paired comparison data is nonindependent, the use of analysis of variance here is justified if certain restrictions are made in interpreting the data.

Significant sex differences were found in the children's attributional choices. Males were more likely to use luck as an explanation than were females ( $F=5.0$ ,  $df=1/24$ ,  $p < .05$ ). This sex difference is contradictory to McMahon (1972)'s finding that females use luck as an explanation of their behavior more often than do males. There are two possible explanations for this contradiction. First, McMahon's Ss were older, the youngest group being 12 years old. Second, it is possible that Hawaiian culture is responsible for this reversal. Indeed, Mays, Gallimore, Howard, and Heighton (1968) reported that Hawaiian parents gave their sons less responsible chores and more freedom than they gave their daughters.

A significant difference in the children's attributional explanations of positive and negative outcomes was also found. Ability attributions were made more often when the outcomes were positive than when the outcomes were negative ( $F=5.41$ ;  $df=1/24$ ,  $p<.05$ ). This result indicates that 5 year olds are more likely to say someone is "smart" after he completes a task than are they to say someone is "stupid" after he leaves a task unfinished. Similar results were reported by Frieze and Weiner (1971).

A significant SES difference was also found. Middle class children were significantly more likely to choose "try hard" as an explanation for an outcome than were the welfare children ( $F=6.84$ ,  $df=1/26$ ,  $p<.05$ ). This finding is perhaps the most striking of all. Weiner and Kukla (1970) found that high achievers explain outcomes in terms of both their ability (such as "I'm smart") and effort (such as "I tried hard"); while low achievers only use the concept of ability in explaining their outcomes. The inclusion of effort in the high achievers attributional tendencies means that when they experience failure, they have the redeeming explanation "I didn't work hard enough." This effort attribution provides high achievers with an explanation of their outcomes that keeps them working. Low achievers, however, rely on ability attributions so that when failure occurs their explanation is "I'm not capable." Unfortunately, an ability attribution such as this discourages further effort. Thus, the finding that middle class children choose "try hard" more often than welfare children means that this cognitive-safety valve of effort attributions is already present in the attributional tendencies of middle class, but not lower class kindergarteners.

IQ had no relation to the attributional choices of the children ( $F=3.50$ ,  $df=1/26$ ,  $p<.10$ ).

### Teacher's Questionnaire

The results of the teachers' questionnaire are a little less straightforward. The 17 items of the questionnaire were summed over the four teachers. The teachers' responses were significantly related to the SES and IQ of the children. The puzzle score of middle class children was viewed by the teachers as more "typical" of the child's behavior in general ( $F=5.82$ ,  $df=1/26$ ,  $p < .05$ ), and as dependent upon the child's "native intelligence" ( $F=8.91$ ,  $df=1/26$ ,  $p < .01$ ). The puzzle score of welfare children evoked an effort explanation from the teachers ( $F=7.62$ ,  $df=1/26$ ,  $p < .05$ ). Overall IQ was also related to the teacher questionnaire. Children with higher scores had their puzzle performance explained more often by "native intelligence" ( $F=6.61$ ,  $df=1/26$ ,  $p < .05$ ) and regarded as more "typical" of their general classroom behavior ( $F=4.46$ ,  $df=1/26$ ,  $p < .05$ ). The puzzle score of children with lower IQ's more often evoked the explanation of an "ability deficit" ( $F=5.58$ ,  $df=1/26$ ,  $p < .05$ ), "difficult puzzles" ( $F=5.73$ ,  $df=1.26$ ,  $p < .05$ ), and "work hard" ( $F=5.91$ ,  $df=1/26$ ,  $p < .05$ ).

The configuration of the SES and IQ results provides some support for the validity of Weiner et al's conceptualization of achievement motivation. For example, Weiner et al's proposed that the ability dimension represented a stable attribute about the person. The SES and IQ differences found in the teacher questionnaire repeatedly paired the items "native intelligence" and "typical of the child's behavior". Thus, in the minds of the teachers, ability, as represented by intelligence, is seen as a stable characteristic of children.

No significant interactions between SES and IQ were found.

In order to study the relationship between the teachers' use of attributional dimensions and their students' use of these same dimensions, the

children's attributional choices were used to predict the teachers' ratings. That is, the children's choices for task difficulty, luck, ability, and effort were ranked within each category as high or low and these variables used as independent variables in an analysis of variance in which the teacher ratings served as dependent variables. The children's task and ability choices failed to predict the teachers' ratings. Their luck and effort choices, however, were significantly related.

Those children who emphasized effort, and those children who did not emphasize luck were seen by teachers as: (1) having a "special knack" for puzzles ( $F=5.63$ ,  $df=1/26$ ,  $p < .05$ ), (2) choosing either "easy" or "difficult" puzzles ( $F=5.81$ ,  $df=1/26$ ,  $p < .05$ ), (3) showing greater improvement in classroom behavior ( $F=6.06$ ,  $df=1/26$ ,  $p < .05$ ), and (4) switching to another puzzle after they had completed one ( $F=7.86$ ,  $df=1/26$ ,  $p < .01$ ).

Therefore, considerable agreement in attributional explanations was found between teachers and their students. If a child emphasized effort, and not luck, the teachers also emphasized effort in their explanations of the child's behavior.

Thus, the use of Weiner and his associates' attributional model of achievement motivation has been demonstrated with 5 year old children. Weiner and Kukla (1970) argued that one's attributional tendencies are crucial factors in triggering achievement behavior. If this is the case and if attribution patterns are present in children at the onset of kindergarten, as these data indicate, then one must look into the preschool years for the genesis of at least some attributional tendencies.

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